(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

556008

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
18 November 2004 (18.11.2004)

PCT

(10) International Publication Number
WO 2004/100150 A2

(51) International Patent Classification[7]: G11B 20/00

(21) International Application Number:
PCT/IB2004/050633

(22) International Filing Date: 11 May 2004 (11.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03076440.1 12 May 2003 (12.05.2003) EP

(71) Applicant *(for all designated States except US)*: **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **HEKSTRA, Andries, P.** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **COENE, Willem, M., J., M.** [BE/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **IMMINK, Albert, H., J.** [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

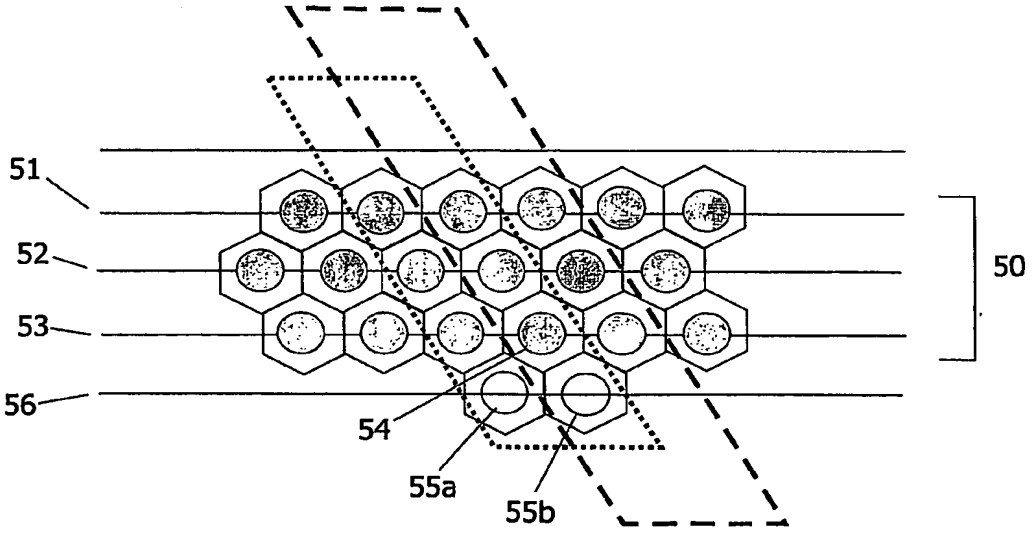
(74) Agent: **UITTENBOGAARD, Frank**; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: ITERATIVE STRIPEWISE TRELLIS-BASED SYMBOL DETECTION METHOD AND DEVICE FOR MULTI-DIMENSIONAL RECORDING SYSTEMS



(57) Abstract: When processing a two dimensional data area it is known to be advantageous to divide the two dimensional are into stripes and process each stripe using a stripe-wise detector. The stripe being processed shifts row per row downwards. Each stripe has as its output the bit-decisions of the top bit-row of the stripe which is the most reliable. That output bit-row is also used as side-information for the bit detection of the next stripe which is the stripe which is shifted one bit-row downwards. The bit-row just across the bottom of the stripe on the other hand still needs to be determined in the current iteration, so only the initialisation bit-values can be used in the first iteration of the stripe-wise bit-detector. In order to prevent the propagation of errors towards the top bit row of the stripe the relative weight for the bottom branch bit in the figure-of-merit is reduced from the full 100% to a lower fraction.

WO 2004/100150 A2

SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.